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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,123	08/16/2000	Leon Awerbuch	4424791-0002	3791

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PATENT DEPARTMENT  
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NEW YORK, NY 10036

EXAMINER

FORTUNA, ANA M

ART UNIT PAPER NUMBER

1723

1)

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.  
**09/641,123**Applicant(s)  
**Awerbuch**Examiner  
**Ana Fortuna**Art Unit  
**1723**

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Jan 29, 2002
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 24-29 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 24-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)                      18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_                      20) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 3, 4, 5, 6, 8, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 24-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Hassan (WO 99/16714)(hereinafter WO). Reference WO teaches the process of producing potable water from sea water by combining nanofiltration and desalination systems, e.g. RO, MSFD, MED, VCD (abstract, page 4, lines 21-29, page 5, and Fig. 9). Reference WO also teaches the blending of the softened water with water containing higher concentration of hardness, e.g. with concentrated water from a reverse osmosis step, and/or with sea water, which is heated by the distillate water produced in the MSFD unit (illustrated in Fig. 9, as NF, SWRO, H.R.C., H. R.J, S.W(sea water)). It is clearly illustrated that permeate from the NF membrane is received in container A/A), and pumped to the MSFD, after mixing with sea water. As to claims 3-4, 6, in the embodiment including the mixing (claimed in step b of claim 1), the feed is introduced to the MSFD. As to claim 5, alternatively using RO, or VCD(vapor compression distillation) is also disclosed in WO (page 11, lines 18-25) as equivalents to MSFD.

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As to claim 7, the operation temperature claimed is disclosed by WO (page 20, lines 16-18).

Regarding claim 8, the first membrane water treatment step as nanofiltration is disclosed (Figure 9, NF). As to claim 11, the nanofiltration operating temperature are conventional and disclosed in The WO (Table 6). The changes on permeate composition with pressure are also disclosed, as claimed in claim 12 (Fig. 1 or WO). As to claim 13, the softened water, e.g. permeate from the nanofiltration unit is stored into a container (AA, Fig. 9). As to claims 14-16, the mixing of the permeated from the nanofiltration, e.g. with reject from the reverse osmosis membrane, in the container (buffer system), and prior to entering the desalination system is disclosed (Fig. 9).

Regarding claim 17, 26, producing a rejected stream or brine, e.g. from the nanofiltration, reverse osmosis and MSFD is disclosed in WO (Fig. 9). The process including treating water with the system as claimed in claims 24-25 are also disclosed in WO, together with the description with the system (Fig. 9). Regarding claim 18, adding acid prior to the nanofiltration treatment of the sea water is also disclose (Fig. 9, H<sub>2</sub>SO<sub>4</sub>). Using a multistage membrane process, e.g. including more than one NF and RO membranes in the system is disclosed by WO (Fig. 8)

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 9, 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan (WO), as applied to the claims in the above paragraph, and further in view of Hassan et al (Nanofiltration as means of achieving higher TBT of ... in MSF) The later reference teaches combining nanofiltration with the desalination process, and suggest using NF permeate as make up water fro the MSF, and further teaches deareating the make up water (from the reverse osmosis or nanofiltration membrane), before passing it to the desalination unit.(entire articles, pages 123-129, fig. 3). Heating the NF permeate is also suggested by Hassan (page 127, column 1, last paragraph, and column 2, first paragraph). As to claim 2, injecting a percentage of make up water as desired, or required by the process it would have been obvious to one skilled in the art at the time the invention was made. It would have been also obvious to one skilled in the art at the time the invention was made to use the system of Hassan et al (article) for the production of potable water as suggested, and in combination with aeration of the make up water to the MSFD, as suggested by Hassan et al (article), heating of the make up water, e.g. by mixing with the heated sea water, which is heated by heat exchanging with the distillate (unit H. RJ).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for regular responses, and (703)872-9311 for after finals.

Ana Fortuna

April 5, 2002



**ANA FORTUNA  
PRIMARY EXAMINER**